CHEMICAL CONTAMINATION AT THE CAMDEN GENERAL ELECTRIC PLANT IN THE DAVENPORT/ LANSDOWNE AREA

1983

CHEMICAL CONTAMINATION
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CITY OF TORONTO
DEPARTMENT OF PUBLIC HEALTH

A.

December 13, 1983

To: Local Board of Health

Subject: Chemical Contamination at the Canadian General Electric Plant in the Davenport/Lansdowne Area

Origin: Local Board of Health, November 8, 1983
(c34hlth83150:148)

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Comments:

At its meeting on November 8, 1983, the Local Board of Health had before it a preliminary report prepared by Northern Health Area staff concerning the PCB contamination at the Canadian General Electric (C.G.E.) site. The Local Board of Health also received written communications from Alderman Gilbert (November 7, 1983) and Trustee Disero (November 3, 1983) which raised a number of questions concerning whether the on and offsite contamination posed any health concerns to the C.G.E. workers or to the citizens located in the immediate vicinity.

The Local Board of Health requested me to report on those questions raised by the two aforementioned officials which come within the jurisdiction of this Department.

It is important for the Local Board of Health to recognize that this Department, although concerned with the PCB contamination and any immediate or future potential health effects arising from this problem, is not in a position to offer firsthand answers to many of the questions raised. The majority of these deal with matters which are the direct responsibility of the Ministry of the Environment, some the responsibility of the Ministry of Labour; and fewer still the responsibility of the City and Metro Departments of Works.

Since this problem was first made public, our staff have held ongoing meetings with officials of City and Metro Works Departments and the Ministries of the Environment and Labour to discuss the various technical aspects of this case and to determine and clarify our respective areas of responsibility. Our staff have also attended a number of meetings with C.G.E. officials and have now accessed and reviewed the pertinent technical documentation in preparation for this report. We have included as Appendix I the diagram prepared by C.G.E. which identifies the contaminated areas.

This report which was prepared by staff of the Northern Health Area is structured so as to permit, where possible, full discussion of each of the principal areas of concern raised at the November 8th meeting. Also included are questions which were raised subsequently by Alderman Gilbert, and concerns expressed by various citizens who attended the community meeting which was held at the Perth Avenue Public School the evening of November 10th.

Question 1 - Trustee Disero

"What studies have been made by the Ministry of the Environment since 1974 to determine the extent of concentration and sources of PCBs in our City?"

Response

Awaiting Ministry of the Environment's reply.

Question 2 - Trustee Disero

"With respect to the storage of PCB waste material, what storage areas and quantities have been found by the Ministry throughout the City and what are the locations of the off-site manholes?"

Response

The question of PCB waste material in storage throughout the City has been referred to the Ministry of the Environment. With regard to the offsite manhole we can report the following:

> The initial offsite sampling program which was conducted by C.G.E. during August, 1983 was confined to two manholes and one catch basin on Lansdowne Avenue (see Appendix 2).
>
> Manhole No. 1, located upstream on Lansdowne Avenue, north of Building No. 18, was selected to provide background PCB levels. Manhole No. 4 is located on Lansdowne Avenue directly opposite the south end of Building No. 18 and is at the point where the C.G.E. sewer line connects to the municipal sewer. The catch basin tested is located at the low point under the CPR overpass directly at the base of the overpass abutment on the west side of which (C.G.E. property) PCB contaminants are known to exist.

This testing program revealed the following:

| | | | |
|---|---|---|---|
| Manhole No. 1 | - | Water | 0.08 ppb |
| | - | Sludge | 0.74 ppm |
| Manhole No. 4 | - | Water | 11.7 ppb |
| | - | Sludge | 76.2 ppm |
| Catch Basin | - | Water | 0.5 ppb |
| | - | Sludge | 1.01 ppm |

Note:

Ministry of the Environment standard for PCBs:

| | |
|---|---|
| Soil | 50 ppm |
| Water | 5 ppb |

C.G.E. was directed by the Ministry of the Environment to carry out additional offsite tests of the municipal sewers in this vicinity. (See Appendix 3.) Additional samples were collected on November 10, 1983 from the following areas:

Analysis Result

(Water)

| | | |
|---|---|---|
| Manhole 4 - | identified earlier as containing elevated PCBs | 35.9 ppb |
| Manhole 5 - | Dupont sewer at Lansdowne Avenue | 0.73 ppb |
| Manhole 6 - | Lansdowne sewer at the intersection of Lansdowne Avenue and Dupont Street | 28.0 ppb |
| Manhole 7 - | Lansdowne Avenue at Lappin | 4.0 ppb |
| Manhole 8 - | Ward and Wallace | 2.6 ppb |

The expanded sewer sampling results provide conclusive proof that inordinately high levels of PCBs are discharged into the municipal sewer and one must assume at a relatively constant rate.

The C.G.E. remedial plan which was reviewed, modified and approved by the Ministry of the Environment identifies the termination of the C.G.E. sewer lines currently tied into the municipal sewer on Lansdowne Avenue as a first priority. It is intended that the drainage which collects in the various catch basins located on C.G.E. property will in future be stored on site until appropriate treatment facilities which are provided for in Phase II of the clean-up program become operational.

Question No. 3 - Trustee Disero

"As there is no municipal by-law concerning PCB deposit testing, what is the extent of surveillance of toxic materials by our City Works Department and the type of information that is received from the Ministry of the Environment following their semi-annual sewage system testing?"

Response

Based on our discussions with officials of both the City and Metro Works Departments, we conclude that there are no routine monitoring programs for PCBs or toxic chemicals in place. By-law 138-83 "to regulate the discharge of sewage and land drainage in Metropolitan Toronto", which establishes bacteriological, temperature, and certain chemicals and heavy metal standards of waste discharge, does not provide for routine ongoing sampling.

Routine sampling consisting of approximately 6 samples each year is carried out only for those industries which are assessed a surcharge, because the volume or other characteristics of their effluent exceed the requirements of By-law 138-83. Beyond that, random samples are collected only in situations where there is reason to believe that a particular industry has contravened the provisions of By-law 138-83.

None of the foregoing sampling programs, however, are intended for PCB determinations. The Metropolitan Toronto Works Department laboratory currently lacks the analytical capability for PCBs, but is planning to add this capability in the near future.

Metro Works, in response to PCB contamination at C.G.E., did undertake two special samples at two points on the mid-town interceptor.

Sample 1

Wet weather flow: Collected from the mid-town interceptor at Bloor Street and Parkside Drive.

Sample 2

Dry weather flow: Collected from the mid-town interceptor at Harrison Street and Roxton Road (Ossington and Dundas Area).

Analysis results when available will be forwarded to us.

The Ministry of the Environment in cooperation with the City Public Works Department also conducted a special sampling program at four sites which was intended to determine the PCB levels further down stream, and as close as was possible to the Parkside Drive sewer outfall.

Station No. 1

Parkside Drive at Garden Avenue: active sewer line receiving approximately one half of the drainage from the C.G.E. plant area.

Station No. 2

Parkside Drive below Garden Avenue: this is an unused portion of the sewer and the sample here was intended to determine PCB levels in silt and sludge which may have accumulated during the past.

Station No. 3

Glendale Avenue and Parkdale Road: this is an active line which receives approximately one half of the drainage from the C.G.E. plant area.

Station No. 4

Lakeshore Road, east of Ellis Avenue, where an open watercourse provides drainage for the Grenadier and West ponds which are known to receive a number of storm and combined sewer outfalls.

Analysis results when available will be forwarded to us.

We are advised that the Ministry of the Environment does not carry out semi-annual inspections or sampling at our Metropolitan Toronto Sewage Treatment Plants. These plants are, however, required to conduct their own sampling and forward to the Ministry of the Environment their monthly analysis data which is limited to phosphorus, Biological Oxygen Demand (BOD), and suspended solids. Tests for PCBs or other toxic chemicals are not routinely carried out.

Question No. 4 - Trustee Disero

"As Canadian General Electric has stated that the area residents have not been affected, what is the potential health hazard to the residents in that area?"

Response

Detailed response to this question will be the subject of a future report.

Question No. 1 - Alderman Gilbert

"Determine the amount of PCBs on the site."

Response

Gardiner Lee Associates Ltd., which was commissioned by C.G.E. to study the extent of PCB contamination, carried out 33 core borings (see Appendix 4) so located as to determine:

1. The quantity and extent of PCB contamination inside those structures in which, during the years when this plant was in operation, PCBs were used in the manufacturing, filling and repairing of transformers and other electrical equipment.

2. The quantity and extent of PCB contamination in those open areas where this material was unloaded or transferred.

The conclusion reached was that a volume approximately equal to 10,000 gallons of contaminated oil containing approximately 4% PCBs (40,000 ppm) is localized in pockets under and adjacent to Buildings No. 18 and 36; immediately west of the CPR Lansdowne Avenue overpass; and between Building No. 26, and adjacent to the CNR tracks.

We have also determined from our discussion with C.G.E. and the Ministry of the Environment officials that approximately 1700 gallons of contaminated material consisting of core borings, discarded decontamination equipment and material, capacitors, soil and sludge are stored in sealed 45 gallon drums in Building No.36.

Question 2 - Alderman Gilbert

"What is the extent of migration or leaching of the PCBs from the site and surrounding area."

Response

Based on the information available to date, offsite migration appears to be limited to two manholes located on Lansdowne Avenue above and below the CPR overpass, and from the drainage ditch which runs parallel to and to the north of the CPR tracks.

While we accept that the proposed cleaning, and then termination of the C.G.E./municipal sewer connections will eliminate one source of serious offsite contamination, we remain concerned with the extent of contamination which may have occurred in our sewers downstream, and the impact this may have had on our offshore water quality. The extended sewer sampling program referred to earlier in this report will hopefully provide some additional information in this area.

The testing performed by C.G.E. of the drainage ditch show high levels of PCBs ranging from a low of 114.5 ppm to a high of 1212 ppm. (See Appendix 5.) It is also now known that drainage from this ditch flows west; enters a drainage pipe which crosses under the CPR embankment and connects to a catch basin located on C.G.E. property south of the CPR tracks. This catch basin is connected to a line which routes back to Lansdowne Avenue. During periods of rain or spring thaw we can expect a significant flow through this line which undoubtedly contributes significantly to the contamination of the Lansdowne Avenue sewer.

From our detailed review of the core boring data, we conclude that the bulk of the contamination remains localized. C.G.E. has, however, been directed by the Ministry of the Environment to carry out additional tests to further confirm their previous findings.

These test results, when available, will be the subject of a further report to the Local Board of Health.

C.G.E. has conducted air sampling for PCBs directly over and in close proximity to those areas known to be highly contaminated, and for organic chemicals known to exist in the proximity of Building No. 28. Officials of the Ministry of the Environment have reviewed their findings (see Appendices 6 and 7) and conclude that the levels of several of these chemicals detected are within acceptable limits.

We feel that this area should be the subject of a further review conducted jointly by the Ministries of the Environment and Labour.

Question 3 - Alderman Gilbert

"Obtain historical health data from Canadian General Electric on their employees and historical health data on residents in the surrounding area."

Response

Based on the information available to date, we conclude that it would serve no useful purpose to carry out a retrospective study in the surrounding community. The contaminated ground water on site, while of concern from an environmental and lake water quality perspective, cannot directly affect the community water service. The fact that contamination which is localized is known to be relatively stable, and that PCBs, because of their chemical properties as evidenced by the air sampling results, are slow to vapourize, supports our view that a study of this nature would be of no value.

There is, however, a need to determine whether any of the surface contamination has, during periods of high winds, become airborne and deposited offsite. Therefore, we should request the Ministry of the Environment to undertake the necessary testing.

We also support the need to obtain historical health data from C.G.E. on their employees, and have discussed this request with officials of the Ministry of Labour, who indicated that much of this information was already available.

Question No. 4 - Alderman Gilbert

"Test the leaching of PCBs into the sewer system, sumps, Lake Ontario outfall, and Midtown Interceptor Sewer to determine the PCB content."

Response

We feel that our response to Trustee Disero's question No. 3 which includes details of the expanded sewer tests carried out at various points downtown, adequately addresses this concern.

The following are additional questions and/or concerns raised by Alderman Gilbert during and subsequent to the November 8th meeting of the Local Board of Health, and by citizens who attended the November 10, 1983 community meeting held at Perth Avenue Public School:

1. "PCB contaminated oil has seeped through the face of the CPR, Lansdowne Avenue overpass abutment, and places the pedestrians using the municipal sidewalk at risk."

Response

This was reviewed with officials of the Ministry of the Environment and City Works Department. Based on the investigations they conducted and our own review of the cross-sectional diagram of this structure (see Appendix 8), we conclude that there is no contamination. The stains which do exist on the structure face are due to the corrosion of the iron fence which is embedded in the concrete at the top of the abutment wall.

2. "There is PCB contaminated oil on the east face of Building No. 18 directly opposite Brandon Avenue."

Response

We and C.G.E. have sampled the oil stain which is clearly visible just above grade level. We have also learned that Metro Works have tested the soil at the base of the wall.

Analysis results are not yet available.

3. "PCB contaminated soil is being removed by CPR workers engaged in the Ballast Replacement Program which was underway at the C.G.E. site."

Response

This concern was proven to be unfounded. Appendix 5 illustrates that the PCB levels in the top 6 to 10 inches of the track bed are within acceptable limits.

Our discussions with CPR officials and visits to this site confirm that the Ballast Replacement Program consists of the removal of material from under the track to a depth of 8 to 10 inches below and to approximately 12 inches beyond the rail ties. The ditch in which surface soil is highly contaminated is located approximately 10 feet to the north and at a significantly lower elevation to this work site.

We have sampled the material which was removed from the rail bed and which remains stored in three rail cars just east of the Lansdowne Avenue overpass.

Analysis results not yet available.

4. "CPR workers engaged in the Ballast Replacement Program were not advised of the PCB contamination."

Response

CPR officials confirmed that they were advised on October 28th when the contamination problem was first made public, and that they were provided with analysis results of the samples of the rail bed which were collected by C.G.E. These findings were made known to the workers, and their activity kept them well away from the contaminated ditch. C.G.E. in Phase I of their clean-up plan proposes to erect a fence between this contaminated ditch and the CPR line.

5. "The contaminated material currently stored on site, and that which will be added during the course of the clean-up program in the event of fire, places the entire community at risk."

Response

Building No. 36 which has been designated as a PCB waste storage site, is of concrete and brick construction which contains very little combustible material. A fire protection plan has been developed by C.G.E. and reviewed and approved by the Toronto Fire Department, whose officials advised that this structure is in full compliance with the Ontario Fire Code. This building is also protected by hot and cold sensors and alarms, and a sprinkler system. These measures and the characteristics of PCBs, in our view, minimizes a fire hazard risk.

6. "The storage of hazardous waste products at this site poses an unnecessary and unacceptable health and safety hazard to the community."

Response

While we agree that the storage of PCBs or for that matter any other hazardous waste in close proximity to a residential community is unacceptable, we are equally cognizant of the difficulty that the Ministry of the Environment and other levels of government have had in their attempt to develop a safe disposal system. The technology for safe and effective incineration of PCBs does exist, but repeated attempts to

establish these facilities have in all cases encountered a seemingly insurmountable "not in my back yard" syndrome.

At the present, the only viable alternative to on-site storage is to transport this material to Alberta which does have an approved storage site.

7. "That the site, part of which C.G.E. proposes to redevelop, be subject to restricted use; be intended for industrial purposes only, and that no business intended for the manufacture, storage or sale of food be permitted."

Response

It is in our view premature to judge the outcome or effectiveness of the C.G.E. clean-up program, and therefore inappropriate to impose such restrictions at this time. We would, however, expect that this Department be consulted in any plan for redevelopment.

8. "Are you aware of any public reaction to the contamination of the site? In your opinion, has the public been properly informed about the situation?"

Response

This Department was not involved when the information pertaining to the contamination was first released to the news media, hence cannot comment as to the extent to which this was carried out. Based on our involvement during the second news release, and during the community meeting at which information packages were distributed to those in attendance, we are satisfied that C.G.E. has acted responsibly in making information readily available to the community. One could also use as a yardstick the number and types of telephone calls received in the Northern Health Area office. There appeared to be direct correlation between the number and nature of enquiries we received, and articles carried by the news media during the past few weeks. Such calls in any case were few and the callers seemed satisfied with the action taken by this Department, the Local Board of Health, and the Ministry of the Environment.

9. "Have you been in touch with the union representing C.G.E.'s employees to get their views on the matter?"

Response

Staff in the Northern Health Area have contacted Mr. Jim Turk, Health & Safety Officer, International Brotherhood of Electrical Workers, and offered whatever assistance his organization may require in this matter. There has been no response or further follow-up to their initial contact.

Conclusion

Our staff, based on their extensive review of all available documentation and their lengthy discussions with officials of the various agencies involved in this case, for the most part are satisfied with the remedial plan proposed by C.G.E. We expect, and C.G.E. has provided us with the necessary assurance, that this Department would in future be kept informed as the remedial plan is implemented.

We are also satisfied with the on-going monitoring required by the Ministry of the Environment, the details of which have yet been finalized, and with the commitment to conduct further testing of ground water, soil and sewer effluent.

We do, however, view with real concern the markedly elevated PCB levels found as a result of the expanded sewer testing program which was conducted on November 10, 1983. This amount of PCB, which in the absence of information to the contrary, must be assumed to be discharging at a constant rate, ranging between 11.7 ppb (first test of Manhole No. 4), and 36 ppb (second test of Manhole No. 4), reinforces the need for immediate action to complete Phase I, at least that portion which provides for the termination of the sewer connections on Lansdowne Avenue. While one may suggest that the volume of contaminants, when viewed in the context of the total quantity of effluent being discharged daily to the sewage treated plants, provides for a dilution factor sufficient to minimize any environmental concern, the already fragile state of our offshore water and corresponding impact that this may have on our beaches, our drinking water and aquatic life makes this situation unacceptable.

Recommendations:

1. That the Local Board of Health request the City of Toronto Department of Public Works, in collaboration with officials of Metro Works Department, the Ministry of the Environment and Canadian General Electric, to offer whatever assistance may be necessary to permit the immediate termination of the C.G.E./municipal sewer connections.

2. That the Local Board of Health request the City of Toronto Department of Public Works, in consultation with officials of Metro Works Department, Canadian General Electric and the Ministry of the Environment, to develop and implement a more extensive sewer testing program in order to determine whether any other onsite catch basins are discharging contaminants into the municipal system.

3. That the Local Board of Health request the Ministry of the Environment, in cooperation with City and Metro Works Departments, to develop a routine sampling program for PCBs and other toxic chemicals which may be present in our sewer system.

4. That the Local Board of Health request the Ministry of the Environment and Canadian General Electric to provide this Department with regular progress reports on all aspects of the proposed clean-up plan.

5. That the Local Board of Health write to the Ministers of the provincial Ministry of the Environment and Environment Canada expressing strong support for the expeditious resolution of the problem associated with the disposal of hazardous waste. Both Ministries should be encouraged to explore the feasibility of moving this material, currently stored on site to a C.G.E. location in the United States which has an Environmental Protection Agency approved PCB incineration facility.

6. That the Local Board of Health request the Commissioners of Planning and Development and Buildings and Inspections to notify and consult with officials of the Public Health Department prior to granting any approval for the redevelopment of this site.

7. That the Local Board of Health request the Ministry of the Environment to carry out random surface soil testing for PCBs in the residential community.

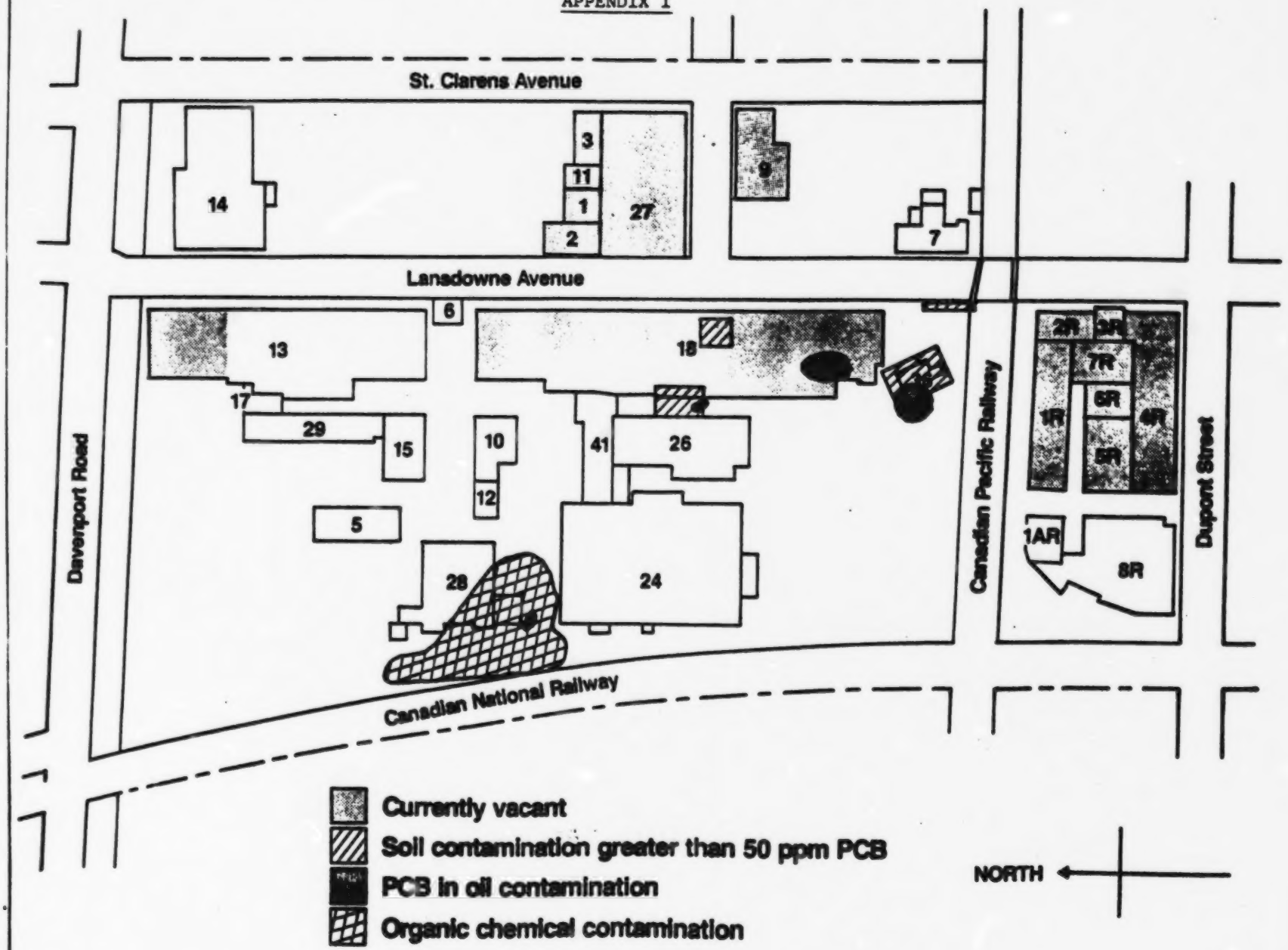
FWR:wf
Attach.

A. S. Macpherson, M.D., M.Sc.
Medical Officer of Health

## APPENDICES

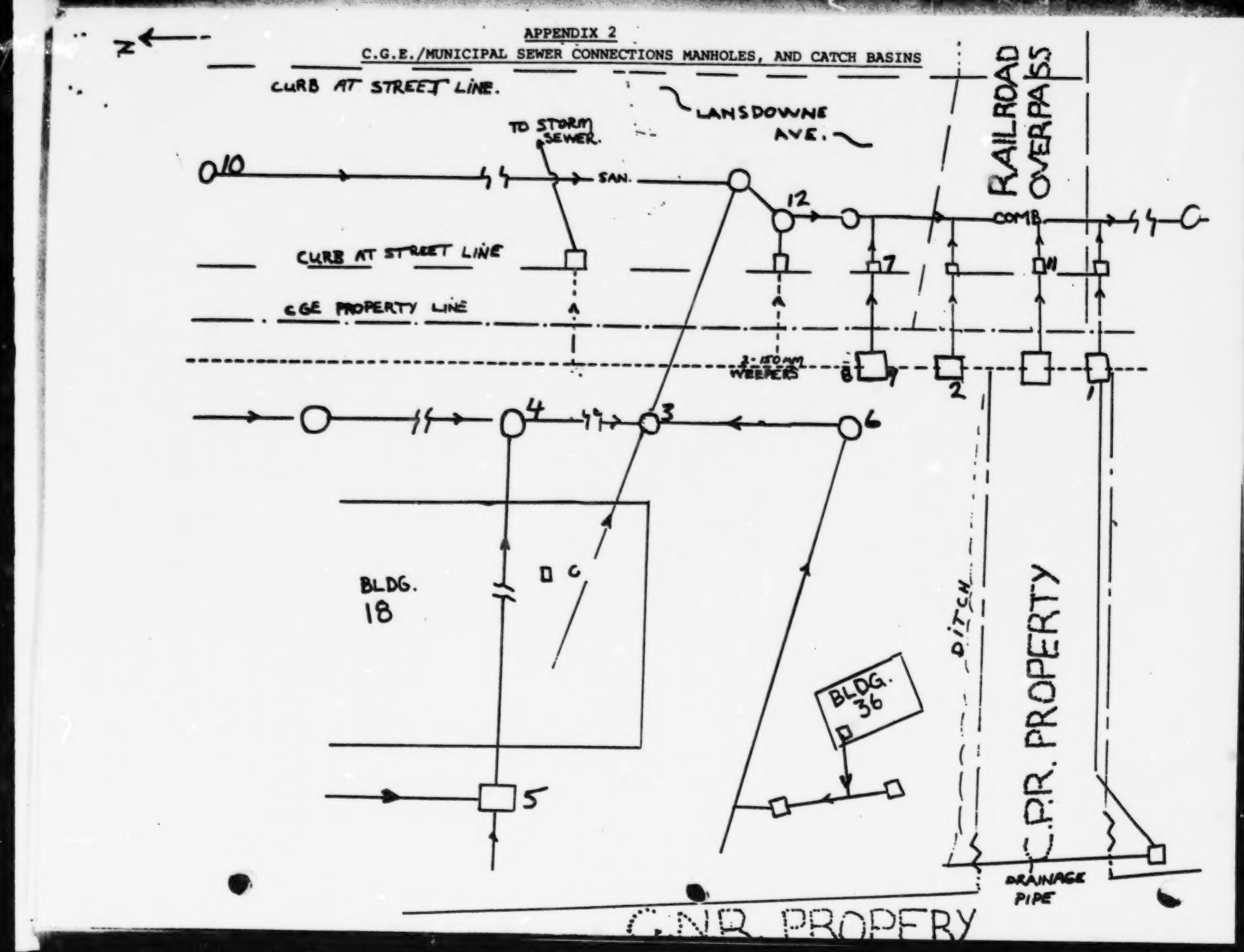
1. C.G.E. diagram of site illustrating contaminated area.
2. C.G.E./Municipal Sewer connections, manholes and catch basins.
3. Expanded Sewer Sampling Program - November 10, 1983.
4. Core Borings and other sampling locations and analysis results.
5. CPR Rail embankment and drainage ditch testing and analysis results.
6. Air sampling results - PCBs.
7. Air sampling results - Organic Chemicals.
8. Cross-section of CPR overpass bridge abutment on Lansdowne Avenue.
9. C.G.E.'s Clean-up Program and Implementation Plan.

APPENDIX I


St. Clarens Avenue
Lansdowne Avenue
Davenport Road
Canadian Pacific Railway
Dupont Street
Canadian National Railway
14
3
11
1
2
27
9
7
6
13
18
17
29
15
10
41
26
12
5
28
24
2R
3R
7R
6R
1R
4R
5R
1AR
8R
Currently vacant
Soil contamination greater than 50 ppm PCB
PCB in oil contamination
Organic chemical contamination
NORTH

APPENDIX 2

C.G.E./MUNICIPAL SEWER CONNECTIONS MANHOLES, AND CATCH BASINS



## TABLE I

### RESULTS OF DRAINAGE SYSTEM

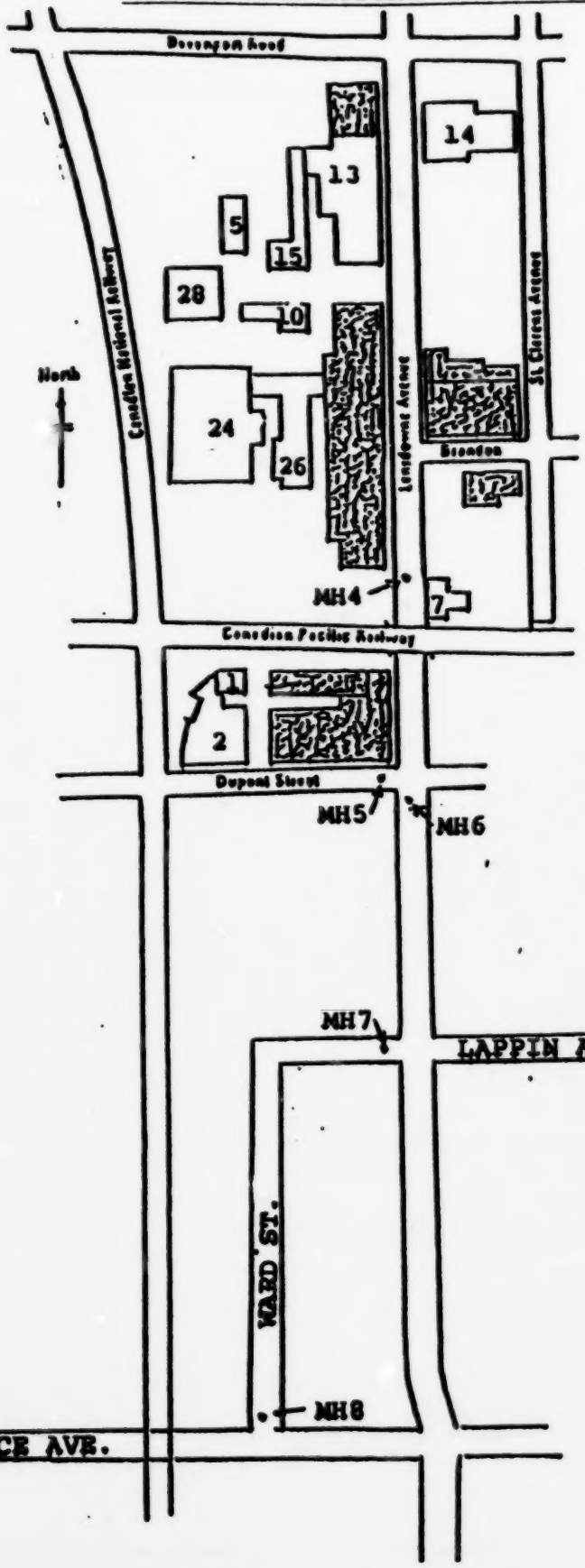
### SAMPLING PROGRAM (AUGUST 22, 1983)

| DESIGNATED NUMBERS TO COINCIDE WITH C.G.E. SAMPLING LOCATION CODES | C.G.E. SAMPLING LOCATION CODES | MATERIAL TYPES | PCB CONCENTRATIONS |
|---|---|---|---|
| 1 | GGD (MH/CB) | Water | 1.12 ppb |
| | | Sludge | 440.0 ppm |
| 2 | GGE (MH/CB) | Oil[3] | 2400.0 ppm |
| 3 | GGF (MH) | Water | 14.0 ppb |
| | | Water | 32.5 ppb |
| 4 | GGG (MH) | Water | 28.4 ppb |
| 5 | GGH (CB) | Water | 0.12 ppb |
| | | Sludge[1] | 32.8 ppm |
| 6 | GGJ (MH) | Water[2] | 785.0 ppb |
| | | Sludge[1] | 150.0 ppm |
| 7 | GGK (MH/CB) | Water | 91.0 ppb |
| | | Sludge | 200.0 ppm |
| 8 | GGK (North Inlet) | Water | 1.6 ppb |
| | | Sludge | 22.0 ppm |
| 9 | GGK (South Inlet) | Water | 11.7 ppb |
| | | Sludge[4] | 210.0 ppm |
| 10 | Manhole No. 1 | Water | 0.08 ppb |
| | | Sludge | 0.74 ppm |
| 11 | Catch Basin No. 2 | Water | 0.5 ppb |
| | | Sludge | 1.01 ppm |
| 12 | Manhole No. 4 | Water | 11.7 ppb |
| | | Sludge | 76.2 ppm |

1. May also contain small quantity of 1254.
2. After extraction and concentration, sample contained visible oil residue.
3. After extraction and concentration, 2 ml oil remained having a concentration of 2400 ppm, which corresponds to about 6 ppm on a water basis. Oil did not form a separate phase in sample as received, and nature is not yet determined.
4. Thin separate phase noted on water portion of sample.

APPENDIX 3

EXPANDED SEWER SAMPLING PROGRAM - NOVEMBER 10, 1983

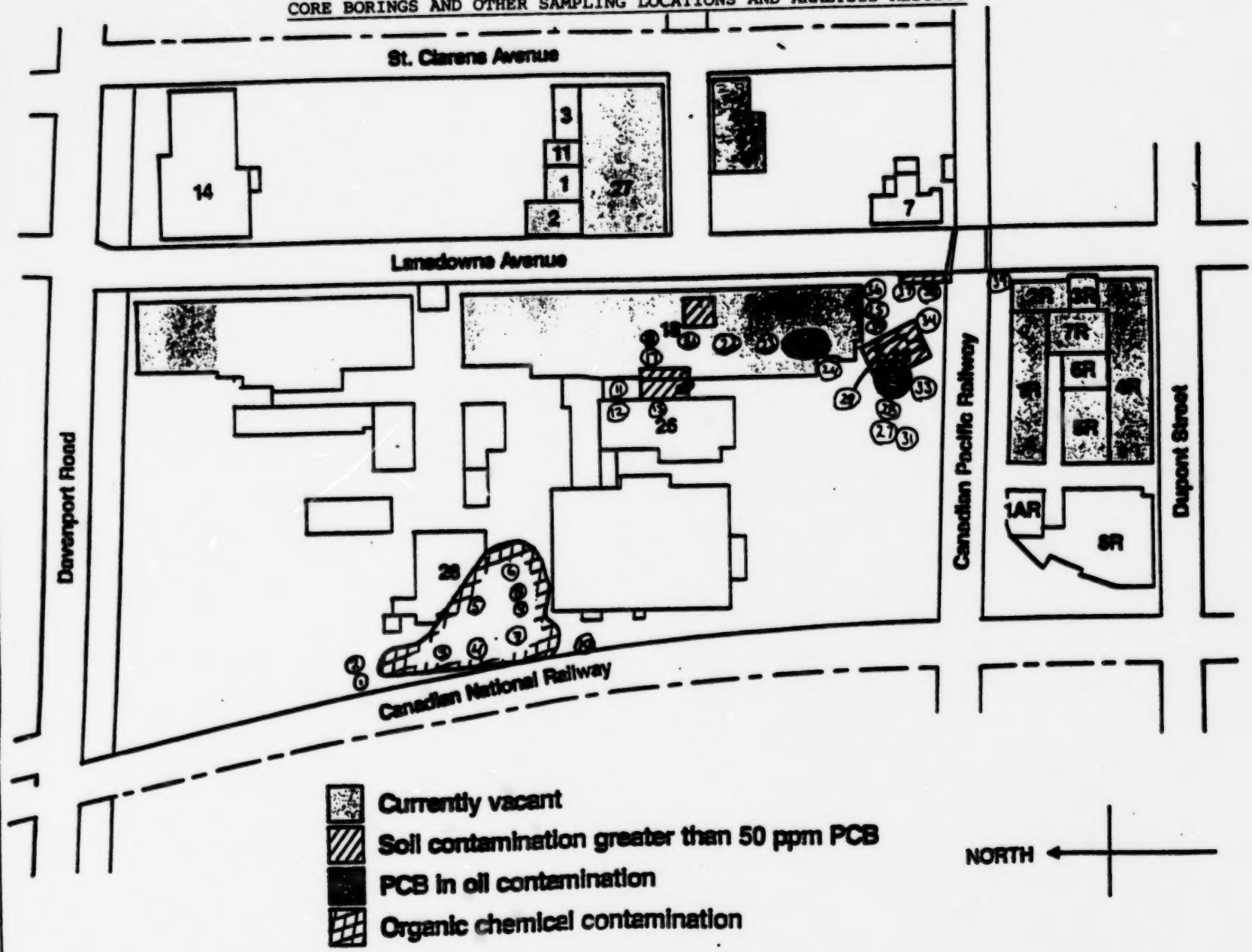



WATER LEVELS

| | | |
|---|---|---|
| MH4 | 35.9 | ppb |
| MH5 | 0.73 | ppb |
| MH6 | 28.0 | ppb |
| MH7 | 4.0 | ppb |
| MH8 | 2.6 | ppb |

APPENDIX 4

CORE BORINGS AND OTHER SAMPLING LOCATIONS AND ANALYSIS RESULTS

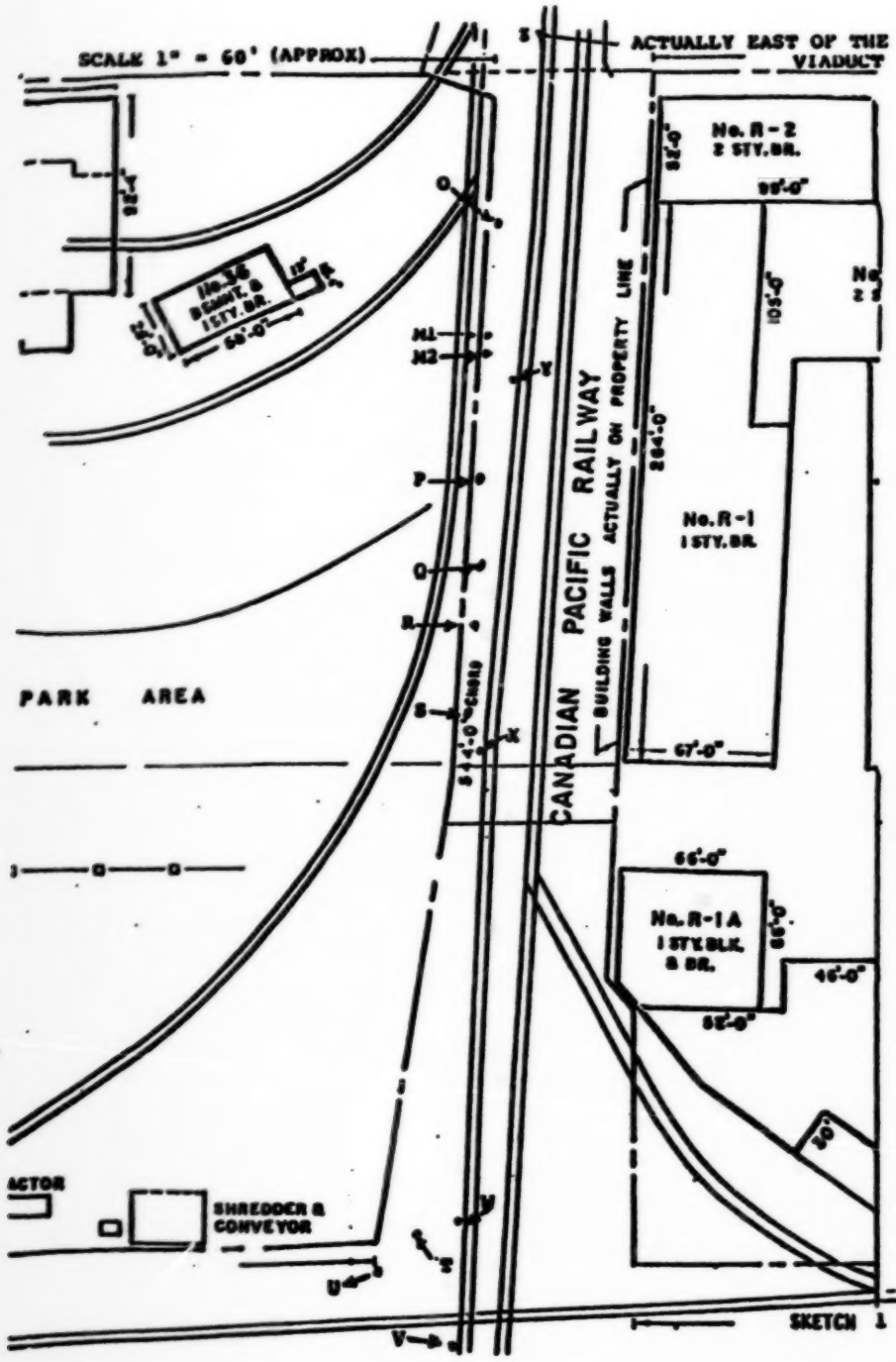


## BORE HOLE AND OTHER SAMPLING LOCATIONS

| Sampling Locations | CGE Designated Sampling Boreholes | Composition of Surface | Approximate Depth Below Gr. (Meters) | PCB Concentration in Soil (ppm) Min. | PCB Concentration in Soil (ppm) Max. | PCB Concentration in Water (ppb) Min. | PCB Concentration in Water (ppb) Max. |
|---|---|---|---|---|---|---|---|
| | **AREA 1** | | | | | | |
| 1 | GG-31 | Fill | 6.0 | NA | NA | <0.1 | <0.1 |
| 2 | GG-10 | Fill | 6.0 | NA | NA | <1.0 | <1.0 |
| 3 | GG-32 | Fill | 6.0 | <0.1 | - | <1.0 | - |
| 4 | GG-36 | Fill | 1.5 | NA | NA | 1.0 | - |
| | **AREA 2** | | | | | | |
| 5 | GG-9 | Fill | 4.0 | 0.05 | 3.5 | 12.0 | - |
| 6 | GG-8 | Fill | 6.5 | NA | NA | 0.1 | 0.7 |
| 7 | GG-33 | Fill | 4.5 | 0.01 | 0.14 | 4.5 | - |
| 8 | GG-35 | Fill | 4.0 | <0.01 | 0.2 | <0.5 | - |
| 9 | GG-34 | Fill | 5.5 | <0.05 | <0.05 | 1.0 | - |
| 10 | GG-19 | Fill | 7.5 | NA | NA | 0.14 | 1.2 |
| | **AREA 3** | | | | | | |
| 11 | GG-2 | Concrete | 3.5 | 0.32 | <2000.0 | 0.35 | - |
| 12 | GG-5 | Asphalt | 6.0 | 4.5 | <2000.0 | 0.5 | 1.2 |
| 13 | GG-39 | Concrete | 4.5 | 100.0 | 140.0 | 0.21 | - |
| 14 | GG-25 | Asphalt | 4.5 | 0.23 | 41.0 | NA | NA |
| 15 | GG-H(C.B) | Catch Basin | 2.2 | NA | NA | 9.5 | - |
| | **AREA 4** | | | | | | |
| 16 | GG-37 | Concrete | 2.1 | 2.5 | - | 0.07 | - |
| 17 | GG-C | Sump | 1.0 | NA | NA | NA | NA |
| 18 | GG-3 | Concrete | 3.5 | 7.0 | 1100 | 0.16 | - |
| 19 | GG-15 | Fill | 5.5 | <0.05 | 0.37 | 0.11 | - |
| | **AREA 5** | | | | | | |
| 20 | GG-B | Valve Box | 1.1 | NA | NA | NA | NA |
| 21 | GG-38 | Concrete | 3.5 | 0.19 | 0.81 | 0.01 | - |
| 22 | GG-4 | Concrete | 4.2 | 1.2 | 29.0 | NA | NA |
| 23 | GG-A | Valve Box | 1.1 | NA | NA | NA | NA |
| 24 | GG-21 | Asphalt | 3.5 | 0.19 | - | NA | NA |
| 25 | GG-22 | Asphalt | 3.5 | 13.6 | - | 1.65 | - |
| | **AREA 6** | | | | | | |
| 26 | GG-7 | Asphalt | 3.5 | 0.1 | 5.0 | 0.8 | - |
| 27 | GG-26 | Asphalt | 4.0 | 55.0 | 60.0 | 48.0 | - |
| 28 | GG-6 | Fill | 9.5 | 0.2 | 66.0 | NA | NA |
| 29 | GG-N | Sump (Bldg.36) | 0.75 | NA | NA | NA | NA |
| 30 | GG-24 | Asphalt | 11.0 | 0.04 | 63.0 | 1.5 | 1.8 |
| 31 | GG-27 | Asphalt | 2.0 | 0.8 | - | 0.3 | - |
| 32 | GG-23 | Asphalt | 10.1 | 4.0 | 14.0 | 0.04 | 0.2 |
| 33 | GG-18 | Fill | 7.0 | 0.2 | 0.4 | 0.06 | 0.4 |
| 34 | GG-17 | Fill | 8.2 | 0.05 | 0.24 | 0.22 | - |
| 35 | GG-M | Surface soil | Surface | 507.0 | 780.0 | NA | NA |
| | **AREA 7** | | | | | | |
| 36 | GG-28 | Fill | 4.0 | <0.02 | - | 1.0 | - |
| 37 | GG-16 | Asphalt | 9.5 | 0.05 | 10.0 | 0.18 | - |
| 38 | GG-29 | Fill | 8.5 | 0.01 | 280.0 | 0.13 | 0.1 |
| 39 | GG-30 | - | 2.0 | 0.05 | - | 0.02 | - |

APPENDIX 5

## CPR RAILBED AND DRAINAGE DITCH SOIL SAMPLING




**12" FROM TIES**

| | | |
|---|---|---|
| V | 3 | PPM soil |
| W | 3.9 | PPM " |
| X | 12.6 | PPM " |
| Y | 14.6 | PPM " |
| Z | 2.7 | PPM |

**IN NORTH TRENCH**

| | | |
|---|---|---|
| M1 | 780 | PPM soil |
| M2 | 507 | PPM " |
| O | 114.5 | PPM " |
| P | 1212 | PPM " |
| Q | 323 | PPM " |
| R | 486 | PPM " |
| S | 441.7 | PPM " |
| T | 192 | PPM " |
| U | 256 | PPM " |

APPENDIX 6

AIR SAMPLING RESULTS (PCBs)

| SAMPLE # | LOCATION+ | DATE | DURATION (MIN) | PCB CONCENTRATION ($mg/m^3$) |
|---|---|---|---|---|
| 8 | Building 36 | Nov. 8 | 267 | ND |
| 9 | Outside 18 | " | 273 | ND |
| 10 | Outside 18 | " | 277 | ND |
| 11 | Inside 18 | Nov. 9 | 259 | ND |
| 12 | " 18 | " | 259 | ND |
| 13 | " | " | 257 | ND |
| Blank | | | | ND |

Exposure Limit 500 $ug/m^3$

Proposed Limit 50 $ug/m^3$

+ See Figure I

Detection Limit = 0.25 ug/sample

APPENDIX 7

AIR SAMPLING (ORGANIC CHEMICALS

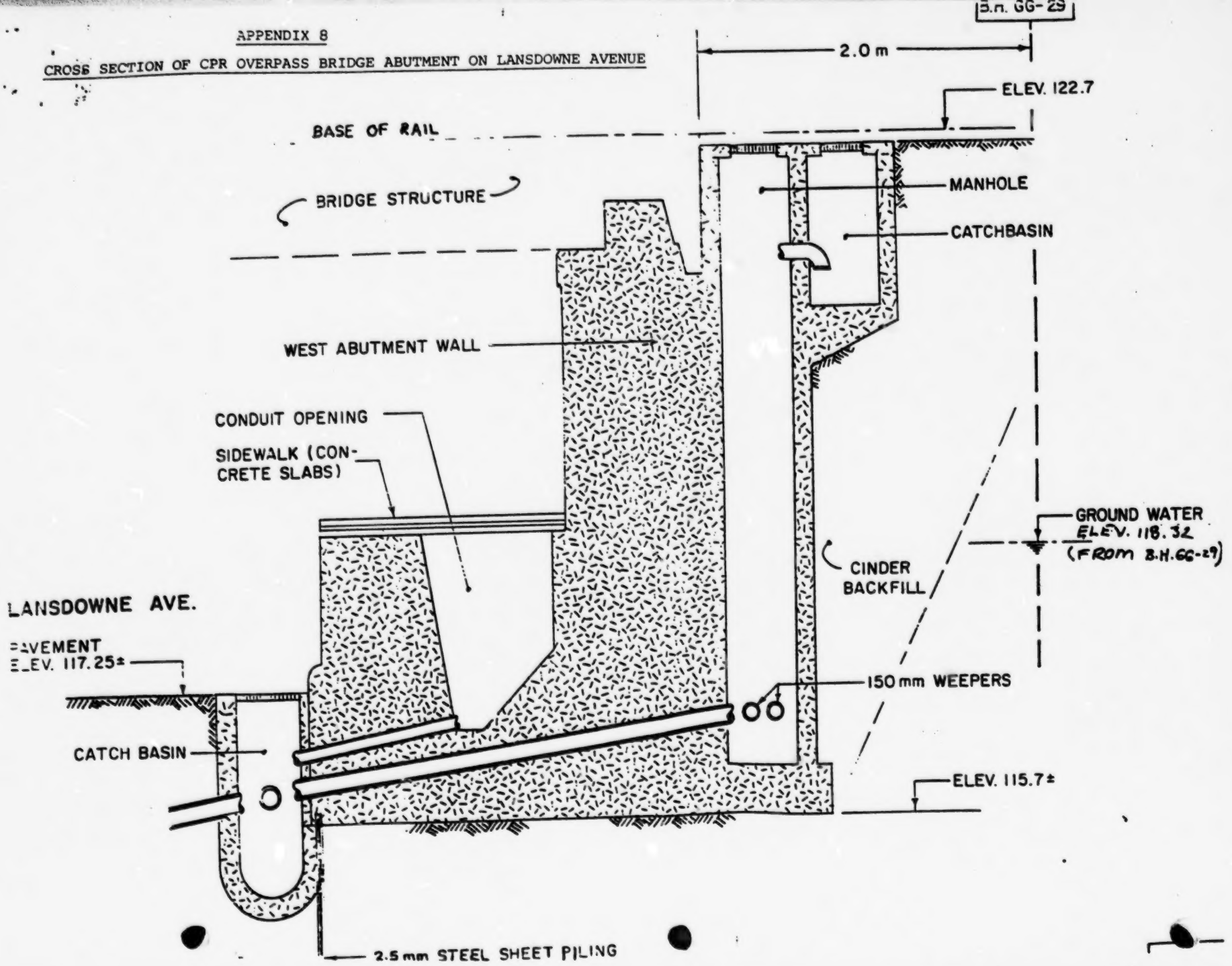
| SAMPLE # | LOCATION | DATE | DURATION (MIN) | MINERAL SPIRIT | VMP NAPHTHA | XYLENE | TOLUENE | PHENOL | CRESOL | STYRENE | PHTHALIC ANHYDRIDE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Outside 28 | Nov.83 | 188 | ND | ND | ND | ND | ND | ND | ND | ND |
| 2 | " | " | 193 | ND | ND | .06 | .06 | ND | ND | ND | ND |
| 3 | " | " | * | * | * | * | * | * | * | * | * |
| 4 | " | " | 198 | ND | ND | .04 | .01 | ND | ND | ND | ND |
| 5 | Inside 28 | " | 193 | 4.8 | 1.0 | 3.8 | 0.4 | 1.8 | ND | 0.8 | ND |
| 6 | " | " | 193 | 5.9 | 1.6 | 11.6 | 4.1 | 13.1 | ND | 1.5 | ND |
| 7 | " | " | 184 | 3.9 | 0.7 | 1.5 | 1.6 | 1.3 | ND | 0.1 | ND |
| 8 | Blank | | | ND | ND | ND | ND | ND | ND | ND | ND |
| 9 | Blank | | | ND | ND | ND | ND | ND | ND | ND | ND |
| Exposure Limits | | | | 525 | 1350 | 435 | 375 | 19 | 22 | 215 | 6 |

Legend

1. All concentrations and limits are in $mg/m^3$
2. * pump failed
3. ND = not detectable
4. Detection limit = 0.1 ug/sample
4. + see Figure I

APPENDIX 8

CROSS SECTION OF CPR OVERPASS BRIDGE ABUTMENT ON LANSDOWNE AVENUE



Canadian General Electric

CORPORATE HUMAN
RESOURCE OPERATION

1420 DUPONT STREET, TORONTO, ONTARIO M6H 2B2 - TEL.: (416) 530-5783

TERRY W. SUTHERLAND
VICE PRESIDENT

November 30th, 1983.

Mr. George Miezinski,
Ontario Ministry of Environment,
150 Ferrand Drive,
Don Mills, Ontario,
M3C 3C3.

Dear Mr. Miezinski:

This is in response to your letter dated October 31st, 1983, regarding the development of a two phase remedial action plan by CGE to clean up our Davenport site.

Phase one of the plan was submitted November 22nd for approval. Enclosed is the complete two phase plan. Please note that we have had discussions with Mr. Singh and Mr. Kowasaki on the development of this plan to the Ministry's satisfaction.

We look forward to your approval of the entire plan and the continuation of the excellent support we have received from the MOE to date through to completion of the remedial action program.

Sincerely,

:sy

cc: Ontario Ministry of Labour
City of Toronto, Public Works Department
City of Toronto, Public Health Department
Environment Canada

# P. C. B.

## DAVENPORT CLEAN-UP

CANADIAN GENERAL ELECTRIC CO. LTD.
1420 Dupont Street
Toronto, Ontario
M6H 2B2

Prepared by

H.R. Hosein PhD
W. Berry P Eng
L. Gray CET
I. Lamb CRSP
W.R. Paul MD

Presented to

Ontario Ministry of Environment
Ontario Ministry of Labour
City of Toronto, Public Works Department
City of Toronto, Public Health Department
Environment Canada

November 30, 1983

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## P. C. B.

## DAVENPORT CLEAN-UP


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| B. | Phase II (Presented to Ministry of Environment November 30, 1983) | 1-6 |
| Tab II | Hygiene, Safety and Environment | 2-1 |
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November 30, 1983

TAB I

# REMEDIAL ACTION PLAN - PCB

## Davenport Clean-up

### OBJECTIVES

1. To ensure that adequate safety precautions are taken to minimize the exposure of individuals to PCB's.

2. To minimize the migration of PCB's from CGE property, and to specifically reduce the PCB levels of any material leaving CGE property by the movement of groundwater or by way of city sewers, to within the current Ministry of Environment Regulation.

3. To assure that all materials containing PCB's above current regulations are secured by one or more of the following methods acceptable to the Ministry of Environment.

   (a) on site

   (b) in situ

   (c) off-site

The remedial action plan outlined below will be carried out under the direction of CGE personnel. The consulting firms of Gartner Lee, MacLaren Engineering, and other firms where applicable, will be hired to provide the expert advice required to develop effective methods of containing and extracting the contaminated materials.

### A. FIRST PHASE OF THE REMEDIAL ACTION PLAN

#### 1. WORKER SAFETY AND MATERIAL HANDLING

##### (a) Worker Safety

1. Conduct training sessions on the handling of PCB- contaminated materials.

2. Provide suitable protective clothing for all persons entering Bldg. 36 or the contaminated portions of Bldg. 18.

3. Provide washroom and changeroom facilities in the south-west corner of Bldg. 18 making use of an unused washroom and office facility.

A. FIRST PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

1. WORKER SAFETY AND MATERIAL HANDLING (CONT'D)

4. Provide suitable lunchroom facilities in the Bldg. 18 area.

5. Establish a procedure for testing the atmosphere in manholes and excavations and provide respiratory equipment if required.

6. Isolate the contaminated portion of Bldg. 18, generally the south part, from the balance of the Bldg. 18 and restrict access to the contaminated area to authorized employees.

Details of these Procedures are shown in Tab II

(b) Storage of Materials:

Prepare Building 36 for receiving both bulk or drummed storage of PCB liquids and solids. This will include checking the security of existing tank storage and at some point setting up a suitable auxiliary storage area if required.

(c) Equipment Cleanup Area

1. Prepare an area in the south part of Bldg. 18 for the cleanup of equipment and tools used for excavating, pumping, or handling of PCB-contaminated materials.

2. Prepare a manual outlining proper cleanup procedures (Tab II).

2. PRELIMINARY CLEANUP OF THE WEST ABUTMENT CATCHBASINS AND MANHOLES

(a) In order to assure that no material is trapped in the catchbasins which could discharge to the City sewers, clean out the four catchbasins on Lansdowne Ave. under the subway.

(b) Clean out catch basins and manholes GG-K, GG-E, GG-O and GG-D on CGE Property

(c) All material from the above manholes and catchbasins to be placed in drums and stored in Bldg. 36.

(d) Monitor any further buildup of materials and repeat the cleaning process if necessary.

A. FIRST PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

3. REVISE SURFACE DRAINAGE AROUND THE WEST AND SOUTH OF BLDG. 36.

(a) Revise the surface around the west and south of Bldg. 36 to direct the runoff away from the building. Temporarily seal the regraded surfaces with a plastic membrane.

(b) Plug the existing catchbasin and discharge pipe (outside the northwest corner of Bldg. 36).

(c) Plug the abandoned drain pipe at the south-west corner of Bldg. 36.

4. DISCONNECT THE SUMP-PUMP IN BUILDING 36.

On September 15, 1983 the sump pump in Bldg. 36 was redirected to the storage tanks in the basement of Bldg. 36. This water will be stored until it can be processed through the water filtration system.

5. LOCATE AND CONTAIN THE SOURCE OF PCB'S ENTERING THE EAST-WEST SEWER LEADING TO GG-G

(a) Repeat the sampling of the sewer at GG-H and GG-G sufficient times to confirm that PCB's are entering the system between these two points.

(b) If it is confirmed that material is entering in this area drill additional shallow boreholes to locate the source of contamination.

(c) When the source is located rectify by isolation of the contaminated material.

(d) Store any contaminated liquids removed in Bldg. 36 and provide temporary storage for contaminataed soils in Bldg. 18.

6. SUMPS AND PITS IN BLDG. 18

(a) Inspect all sumps, pits, valve chambers, and trenches in Bldg. 18.

(b) Test any liquids located during the inspection and store any contaminated liquids in Bldg. 36.

5. FIRST PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

7. PROTECTION OF THE DITCH ON THE NORTH SIDE OF CPR PROPERTY

With the approval of the CPR install a three-foot snow fence to prevent anyone from inadvertently entering the contaminated area of the ditch along the north side of the CPR rail line.

8. FIRE PROTECTION FOR BUILDING 36

Building 36 was inspected by Mr. Rem Gaad of the Planning and Research Division of the City of Toronto Fire Dept. on November 15.

We will place a sign on Bldg. 36, visible from a distance, which will identify the materials to Fire Dept. personnel.

An inspector from the Fire Prevention Division reviewed, on November 15, Building 36 fire protection systems (sprinklers and fire extinguisheers) and also the building construction and reported the system satisfactory and the building to be inherently of fire resistant construction (masonry walls, floors and roof).

9. INVESTIGATIONS AND MONITORING

The contaminated areas of the site were identified after careful review of the storage, and distribution of PCB's over the 35 years that it was used in the Davenport plant. As indicated below further sampling and testing will be conducted to fully define the known contaminated areas.

However, the majority of the site is not contaminated and this fact is confirmed by the analyses of material from boreholes 1, 10, 11, 12, 14, 15, 19, 20, 30 and 31 located in areas of the plant away from the suspected areas of contamination. As well, boreholes 17, 18, 21, 22, 27 and 28 located near the contaminated areas show material well below the Ministry of Environment guidelines which shows that the areas of contamination are localized.

Our future sampling and testing work will be concentrated to the areas identified in the Gartner Lee and MacLaren reports.

(a) Prior Investigations

(1) As reported in the Gartner Lee report

(2) Preliminary samples from the ditch on the north side of the CPR property.

(3) Air sampling

A. FIRST PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

3. REVISE SURFACE DRAINAGE AROUND THE WEST AND SOUTH OF BLDG. 36.

(a) Revise the surface around the west and south of Bldg. 36 to direct the runoff away from the building. Temporarily seal the regraded surfaces with a plastic membrane.

(b) Plug the existing catchbasin and discharge pipe (outside the northwest corner of Bldg. 36).

(c) Plug the abandoned drain pipe at the south-west corner of Bldg. 36.

4. DISCONNECT THE SUMP-PUMP IN BUILDING 36.

On September 15, 1983 the sump pump in Bldg. 36 was redirected to the storage tanks in the basement of Bldg. 36. This water will be stored until it can be processed through the water filtration system.

5. LOCATE AND CONTAIN THE SOURCE OF PCB'S ENTERING THE EAST-WEST SEWER LEADING TO GG-G

(a) Repeat the sampling of the sewer at GG-H and GG-G sufficient times to confirm that PCB's are entering the system between these two points.

(b) If it is confirmed that material is entering in this area drill additional shallow boreholes to locate the source of contamination.

(c) When the source is located rectify by isolation of the contaminated material.

(d) Store any contaminated liquids removed in Bldg. 36 and provide temporary storage for contaminataed soils in Bldg. 18.

6. SUMPS AND PITS IN BLDG. 18

(a) Inspect all sumps, pits, valve chambers, and trenches in Bldg. 18.

(b) Test any liquids located during the inspection and store any contaminated liquids in Bldg. 36.

A. FIRST PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

(b) Future Investigations

(1) City Sewers

Carry out sufficient sampling to determine the extent and severity of any contamination in the City sewers.

(2) CPR and CNR Properties

Carry out sufficient sampling to determine the extent of any contamination

(3) Repeat Sampling of Key Boreholes

Repeat water analyses on samples from boreholes GG-5, GG-2, GG-25, GG-4, GG-38, GG-22, GG-28, GG-16, GG-29, GG-17, GG-6, GG-18 and GG-26.

(4) CGE Sewers

(a) Do sufficient additional sampling to confirm the PCB levels at the various manholes.

(b) At time of sampling use a weir to accurately measure the water flow at the various points in the sewer.

(c) Accurately establish the depth and size of the various sewers and drains.

(5) CGE Property

Carry out future sampling to determine the full extent of the contaminated areas.

(c) Sampling and Testing Procedures

1. With the assistance of the Ministry of Environment establish approved methods for:

(i) taking water and analyzing samples from sewers.

(ii) taking sludge samples from sewers.

2. Provide random samples to the Ministry for verification of results.

A. FIRST PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

10. TIME TABLE

| | ACTION | START | FINISH |
|---|---|---|---|
| 1. | (a) Worker Safety | Immediately | Ongoing |
| | (b) Storage of Materials | Immediately | Ongoing |
| | (c) Equipment clean-up area | Jan. 30 '84 | Ongoing |
| 2. | (a) Preliminary clean-up of catchbasins and manholes | Dec. 9 '83 | Dec. 16 '83 |
| | (b) Clean up catchbasins and manholes on CGE | Dec. 9 '83 | Dec. 16 '83 |
| | (d) Monitor buildup in catch-basins and manholes | _____ | Ongoing |
| 3. | (a) Revise surface drainage West & South of Bldg. 36 | Dec. 16 '83 | Dec. 30 '83. |
| | (b) Plug catchbasins and discharge pipe | Dec. 16 '83 | Dec. 30 '83 |
| | (c) Plug abandoned drain pipe | Dec. 16 '83 | Dec. 30 '83 |
| 4. | Disconnect Sump-pump in Bldg. 36 | Completed | _____ |
| 5. | (a) Locate and contain source entering E-W sewers this Bldg. 18 | Dec. 1 '83 | Dec. 16 '83 |
| | (c) Isolate source (if found) | Dec. 16 '83 | to be scheduled according to findings |
| 6. | Inspect and clean sump pits in Bldg. 18 | Initiated | Jan. 16 '84 |
| 7. | Protection of Ditch on CPR property-snow fence | Initiated | Dec. 16 '83 |
| 8. | Review Fire Protection of Building 36 | Completed Awaiting Report | _____ |
| 9. | Investigation and Monitoring | | |
| | a. Prior investigation by consultants | Completed | _____ |
| | b. City Sewers | Initiated | Ongoing |
| | c. Sampling and Testing Procedures | Nov. 23 '83 | _____ |

B. SECOND PHASE OF THE REMEDIAL ACTION PLAN

1. Clean up of West Abutment Drainage System

Follow up the preliminary clean up of the West Abutment System by further sampling and investigation to determine the extent of the soil contamination behind the abutment walls and the possible migration routes for oils from the area around Bldg. 36. This will allow finalization of the design to divert existing drainage and surface runoff and allow for the cleaning out of tiles, sewers and catchbasins and the extraction of oil from soils.

(a) Construct new catchbasin and piping to manhole GG-J

(b) Revise surface drainage behind the abutment to direct uncontaminated flow to city sewers.

(c) Plug all outfall behind the west abutment to prevent further discharge to sewers.

(d) Install pump and discharge line in Manhole GG-E - to purge groundwater from abutment to oil separator system and storage tanks.

(e) Clean and reactivate weeping tile.

2. Temporary Soil-Storage

Soil above todays regulation will be excavated during exploratory work, the construction of liquid extraction systems and clean up of contaminated areas.

An area in Bldg. 18 could be set aside and dyked with the concrete floor protected by a heavy-gauge plastic.

3. Design and Install Oil Treatment Facility & GAC Filter System.

The equipment will be located in a temporary fabricated building to be located on the east side of Bldg. 36. or in the south part of building 18 This unit will be used to treat the liquid currently in storage and the liquids which will be extracted from the extraction well systems. Water within current regulations or less will be discharged to the sewer with the approval of Metro and the Ministry. Liquid above current regulations will be stored pending future disposal.

4. Clean up of the CPR and CNR Properties

The approach will be the following:

(a) Complete the investigative work outlined in the First Phase (A.9 (b) 2)

B. SECOND PHASE OF THE REMEDIAL ACTION PLAN

(b) Restore the properties to within current Ministry of Environment regulations.

5. Design and Install a Groundwater Extraction System

Design a groundwater extraction system to be used in conjunction with oil separator equipment described in item 3 to extract the contaminated fluid from the identified areas of the Davenport Plant.

(a) Install pilot installation at GG-6.

(b) Follow up with installations in other areas.

(c) Test effluent on a regular basis to ensure that the discharge concentration is less than current regulations.

6. Disposal of Contaminated Liquids

Liquid wastes not suitable for on-site treatment and the contaminated liquid not suitable for sewer discharge accumulated as a result of operating the oil-extraction system will be stored on-site in building 36 until off-site destruction facilities are approved.

7. Dispose of Contaminated Solids

(a) on-site

(b) in situ

(c) off-site

The selection of the method will depend on future land use and advice from the Ministry of Environment.

8. Organic Materials

An area surrounding the Chemical business in the north-west part of the Davenport plant has contaminants in the soil. However these are not migrating off-site. Therefore no action is planned at this time.

9. CONCLUSION

This plan may be modified as the work progresses. Modifications will be conducted in consultation and with the approval of the Ministry of Environment

B. SECOND PHASE OF THE REMEDIAL ACTION PLAN (CONT'D)

10. TIME TABLE

| | ACTION | START | FINISH |
|---|---|---|---|
| 1. | Clean-up West Abutment Drainage System | May, 1984 | Ongoing |
| 2. | Temporary Soil Storage | Feb. 1984 | March, 1984 |
| 3. | Design and Install Oil Treatment Facility | Jan. 1984 | May, 1984 |
| 4. | Clean-up CPR and CNR Properties | | |
| | (a) Investigate extent of contamination | Initiated | April 1984 |
| | (b) Restore property | May 1984 | May 1984 |
| 5. | Design and Install Ground water Extraction System | Feb. 1984 | Ongoing |
| | (a) Install pilot at GG-6 | June 1984 | July 1984 |
| | (b) Other areas | Based on (5a) above | _____ |
| | (c) Test effluent | Ongoing | _____ |
| 6. | Disposal of Contaminated Liquid | Per M.O.E. advice | _____ |
| 7. | Disposal of Contaminated Solids | Per M.O.E. Advice | _____ |
| 8. | Organic Contamination | _____ | _____ |

TAB II

HYGIENE, SAFETY AND ENVIRONMENT - P.C.B.'s

DAVENPORT CLEAN-UP

I N D E X


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| 1. | Need | 2-2 |
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| Appendix I | Labels | |
| Appendix II | Instruction on Emergency PCB Clean-up | |

TAB II

HYGIENE, SAFETY AND ENVIRONMENT PCB'S

DAVENPORT CLEAN-UP

1. NEED:

PCBs were used in the manufacture of transformers and capacitors under the trade name of Askarel, Pyranol, Inerteen. PCBs are primarily an environmental hazard. It persists in the environment, accumulates in food chains and can be harmful to humans.

For these reasons all persons who are required to work with any material or substance containing PCBs shall be required to adhere to the Health & Safety procedures specified herein.

The PCBs found from the clean-up operation will be found in these materials:

- water
- soil and concrete
- transformer oil

PCBs do not evaporate readily at normal room temperature type and consequently, the risk from inhaling PCBs, especially from the above materials is extremely small. The primary route of exposure from this operation will be via skin contact, hence, the focus of this procedure is to minimize skin contact.

2. RESPONSIBILITY: -

2.1 Employer

(a) The supervisor of the work shall ensure that all workers use the protective devices, measures & procedures to minimize exposure to PCB

(b) The supervisor shall instruct and train all workers with the requirements of these procedures.

2. RESPONSIBILITY (CONT'D)

2.2 Worker

(a) To work in compliance with the procedures contained herein.

(b) Report to the employer any violation of or defect in any equipment or protective device of which he is aware.

(c) To report to the supervisor any accident, injury, or illness which may be related to the work.

2.3 Manager Health and Safety

(a) To ensure that the proper safety devices are provided and that workers are trained in their use

(b) To develop and present training programs on the health hazards associated with PCB exposure and the methods to be used to minimize exposure

(c) To ensure that exposure monitoring is conducted where required

3. WORK PROCEDURES

3.1 Work may only be undertaken by workers fully trained in the handling of PCB equipment and material.

3.2 Workers who may be exposed to PCB must follow the guidelines on personal protection as outlined in Section 4.

3.3 Workers must wash hands before eating, smoking or using washroom facilities.

3.4 At the end of shift, workers should shower before changing into street clothes.

3.5 Smoking, eating and drinking are probibited in PCB work area.

3.6 Before entering a manhole, pit, etc. follow personal protective instructions as outlined in Section 4. The supervisor must determine if it is a "Confined Space". If tests indicate that it is a confined space, then follow Corporate Instruction # 1017.

3.8 All tools, equipment and devices used during repair must be properly decontaminated as outlined in Section 8.

3. WORK PROCEDURES (CONT'D)

3.9 All fluids and rags used for decontamination must be7treated as PCB waste and labelled accordingly, as outlined in Section 8.

4. PERSONAL PROTECTIVE EQUIPMENT

4.1 Where there is potential for skin contact with PCB, use non-permeable outer clothing, gloves and boots.

The materials best suited for gloves are Dupont Viton or polyvinly acetate.

4.2 All personal protective equipment must be inspected for leaks, protection efficiency and general operating conditions prior to each day of use.

4.3 Protective equipment which become contaminated on the inside, must NOT be used until properly decontaminated or replaced.

4.4 Care must be taken in removing protective equipment so as not to contaminate the clean inner side. Contaminated clothing must be left in the designated area. Do NOT enter any "clean" area with contaminated clothes, boots or gloves etc.

4.5 Workers entering any manhole, or confined area must wear full body protection and the approved respiratory protection as required.

5. PERSONAL HYGIENE

5.1 Any parts of the body coming in direct contact with PCB contaminated liquid must be washed thoroughly with soap & water.

5.2 Wash hands thoroughly with soap and water before eating, smoking or using washroom facilities.

5.3 Workers should shower before donning street clothes to go home.

5.4 No contaminated clothing or equipment shall be removed from the work area without written permission.

5.5 Disposable protective clothing or gloves must be discarded upon being contaminated. Re-usable clothing must be laundered on-site.

5. PERSONAL HYGIENE (CONT'D)

5.6 Non disposable protective equipment must be decontaminated after each use using a kerosene swab followed by a detergent and water wash.

6. EXPOSURE MONITORING

6.1 Whenever a worker has to enter a confined space, the following must be assessed and recorded

- oxygen concentrations
- explosive material concentration

6.2 In any operation where a heat source could result in the evaporation of PCB the potential for exposure to airborne PCB vapour must be assessed and recorded.

7. FACILITIES & PROCEDURES

7.1 A change room will be provided and will be equipped with lockers. This will be considered a "clean" room.

7.2 A washroom area with toilet, showers and wash basins will be provided, and will also be equipped with lockers for dirty and contaminated clothing.

7.3 A lunch room will be provided and equipped with tables and chairs.

7.4 A laundry area will be provided with a washing machine and dryer.

8. DECONTAMINATION

8.1 Where possible, tools and equipment used for this clean-up operation should be dedicated.

8.2 Decontamination of tools, equipment and devices should include swabbing with kerosene-soaked rag or dipping into kerosene bath.

8.3 Following the kerosene swab, there should be a detergent wash and then a water rinse. Clean tools (equipment) should be isolated from dirty area.

8.4 Treat all wash, rags and disposable devices as PCB-contaminated. Store in leakproof containers (16 gauge 45-gallon drum) and label accordingly. All waste water should be stored or filtered before discharge into the sewer system.

## 9. EMERGENCY (SPILLS, EXPLOSIONS, FIRES)

9.1 An emergency is said to exist where there is:

(i) a spill of PCB fluid, or
ii) an explosion or fire occurs in an area with PCB, or
iii) an explosion or fire in the vicinity of a PCB container which results in a spill or leak.

This section relates to item (i) only. in case of (ii) or (iii), evacuate the area, inform the fire department of the incident and the nature of the materials.

(a) Rope off the area and restrict access to PCB emergency crew only.

(b) Ensure that all emergency crew members are properly outfitted with non-permeable gloves, boots, and overalls.

(c) Contain spill by the use of sawdust or other appropriate absorbent material. PCB liquid must not enter the sewer system or contaminate the soil.

(d) Suction spilled fluid into drum.

(e) Clean surfaces, where necessary, with kerosene.

(f) Decontaminatae tools and equipment as in Section 8.

(g) Record incident and make note of all procedures followed. Send a copy to the Corporate Manager of Industrial Hygiene and Environment Protection who will inform the appropriate authorities as required.

9.2 Emergency telephone numbers are:

| | |
|---|---|
| First aid, Building 10 | # 5555 |
| Spill, Guard House | # 5650 |
| Fire and or explosion, Power House | # 5666 |

Instructions will be issued to these 3 locations on the handling of calls from the PCB work area (Appendix II).

# ATTENTION

CONTAINS **PCB** CONTIENT DES

POLYCHLORINATED BIPHENYLS BIPHENYLES POLYCHLORES

A TOXIC ENVIRONMENTAL CONTAMINANT SCHEDULED UNDER THE ENVIRON - MENTAL CONTAMINANTS ACT IN CASE OF ACCIDENT. SPILL OR FOR DISPOSAL INFORMATION. CONTACT THE NEAREST OFFICE OF THE ENVIRONMENTAL PROTECTION SERVICE ENVIRONMENT CANADA

PRODUITS TOXIQUES MENTION NES DANS L'ANNEXE DE LA LOI SUR LES CONTAMINANTS DE L'ENVIRONNEMENT EN CAS D'ACCIDENT. OU DE DEVERSEMENT OU POUR SAVOIR COMMENT LES ELIMINER. CONTACTER LE BUREAU DU SERVICE DE LA PROTECTION DE L'ENVIRONNEMENT MINISTERE DE L'ENVIRONNEMENT LE PLUS PRES

**PR** 20108

LABEL FOR TRANSFORMER

CAUTION ATTENTION

CONTAINS CONTIENT DU

# PCB

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CONTAMINANT L'ENVIRONNEMENT

**PR** 11896

LABEL FOR CAPACITOR

# INSTRUCTION ON EMERGENCY PCB CLEAN-UP

## ATTENTION

First Aid, Building 10

Guardhouse

Powerhouse

In case of an emergency in the PCB clean-up area, workers have been instructed to call your location depending on the nature of the emergency.

## INSTRUCTIONS

### First Aid

Please study Tabs II and III of the Davenport clean-up program. Where a worker has to come to the First Aid Center for attention, the primary concern is to minimize contamination of the center. The workers should be instructed to remove all contaminated clothing, and if possible, wash-up and don "clean" clothing before entering the center. If it is more convenient, the center may wish to have a separate room for attending to workers who may have contaminated clothing.

### Guard House

In case of a spill, the Power House will be contacted. The PCB emergency team leader must be informed immediately (L. Gray Telephone 5043, home 741-2867 or W. Berry, Telephone 5384, home 926-8194). Depending on the nature of the spill, special precaution will be required. Under no condition should anyone other than the emergency team, enter the area. The guard house staff must study Tab II of the clean-up program.

### Power House

In case of a fire, the power house will be contacted. Immediately call the fire department and be available to direct them to the source of the fire and inform them of the nature of the materials stored in the area.

TAB III

HEALTH SURVEILLANCE PROGRAM - PCB'S

DAVENPORT CLEAN-UP

Evidence from multiple health studies dealing with human exposures to P.C.B.'s show no clinically observable long term health effects. However C.G.E. will conduct a health assessment of all employees engaged in the P.C.B. cleanup operation. The health assessment would include a medical review, biological monitoring and serum (blood) P.C.B. determinations.

The enclosed form will be used to record the assessment findings. The need for future assessments will be based on the serum P.C.B. levels as noted in the "P.C.B. serum action level" sheet.

A pre-placement health assessment will be conducted, and following completion of the clean-up work, the health assessment will be repeated.

# P.C.B. WORKERS ASSESSMENT FORM
## C.G.E.

NAME: _____ EMPLOYEE _____ MALE ___ FEMALE ___

PLANT LOCATION _____ EMPLOYMENT STATUS - 1 2 3 4 DATE OF BIRTH _____ Year Month Day

DATE OF EXPOSURE FROM _____ TO _____

NATURE OF EXPOSURE CONTACT YES ___ NO ___ OTHER _____

NATURE OF WORK PERFORMED (at time of exposure) _____

| DATE OF EXAMINATION | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | GENERAL HEALTH HISTORY | NORMAL | ABN | VALUE COMMENT | NORMAL | ABN | VALUE COMMENT | NORMAL | ABN | VALUE COMMENT |
| | FATIGUABILITY<br>APPETITE<br>SKIN PROBLEMS | | | | | | | | | |
| II | PHYSICAL EXAMINATION | | | | | | | | | |
| | ABD - Liver; size, edge, consistency tenderness masses, other organs | | | | | | | | | |
| | SKIN- Acne form lesions<br>- Pigmentation | | | | | | | | | |
| | CNS - Reflexes, tremour<br>- Gait, motor, sensory | | | | | | | | | |
| III | BIOLOGICAL MONITORING | | | | | | | | | |
| | SERUM PCB LEVEL<br>CCR<br>CHOLESTEROL, TRIGLYCERIDES | | | | | | | | | |

EMPLOYMENT STATUS - 1 Still employed in Davenport 2 No longer employed by CGE
3 Retired 4 New

Signed _____ MD

REMARKS _____

| POLYCHLORINATED BIPHENYLS (PCB's ASKAREL) - HEALTH AND SAFETY PROCEDURES | TAB HUMAN RESOURCES<br>APPENDIX IV | NUMBER 1079 |
|---|---|---|

## SERUM PCB ACTION LEVELS

A. Designated PCB Worker - Potential Occupational Exposure

| Serum PCB Level (ppb) | Action |
|---|---|
| 1. Less than 100 | Annual medical examination including serum PCB Level |
| 2. 100-200 | a) Annual medical examination including serum PCB level<br>b) Investigate whether serum PCB level was due to a workplace exposure and if so, correct any abnormal workplace conditions or work procedures<br>c) Monitor PCB airborne concentrations using personal samplers. If exposure was found to be greater than the TLV*, repeat serum PCB level immediately |
| 3. Greater than 200 | a) Annual medical examination including serum PCB level<br>b) Repeat the medical examination and serum PCB level at six month invervals until the serum PCB level falls below 100 ppb<br>c) Remove worker from further potential work place exposure<br>d) Investigate whether serum PCB level was due to a workplace exposure and if so, correct any abnormal workplace conditions or work procedures<br>e) Monitor PCB airborne concentrations using personal samplers. If exposure was found to be greater than the TLV*, repeat serum PCB level immediately<br>f) Worker may be re-assigned to PCB work only after two consecutive serum PCB levels fall below 200 ppb, and the worker has been declared fit by the plant medical consultant |

* 42% chlorine TLV 1 mg/m$^3$
52% chlorine TLV 0.5 mg/m$^3$

B. Not Designated as a PCB Worker - Previous Occupational Exposure Possible

Participation in this program is on a voluntary basis only. Upon request, do a baseline serum PCB level; based on this level the following actions are indicated:

| Serum PCB Level (ppb) | Action |
|---|---|
| 1. Less than 200 | Arrange for an annual medical examination and serum PCB level |
| 2. Greater than 200 | a) Arrange for an annual medical examination<br>b) Repeat the serum PCB level at six month intervals until the level falls below 100 ppb. |

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| 2. Greater than 200 | a) Arrange for an annual medical examination<br>b) Repeat the serum PCB level at six month intervals until the level falls below 100 ppb. |

POOR

QUALITY

ORIGINAL